



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/068,039

02/05/2002

Ernest C. Chen

PD-201148

8307

20991

7590

04/19/2005

THE DIRECTV GROUP INC  
PATENT DOCKET ADMINISTRATION RE/R11/A109  
P O BOX 956  
EL SEGUNDO, CA 90245-0956

EXAMINER

TORRES, JUAN A

ART UNIT

PAPER NUMBER

2631

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/068,039

**Applicant(s)**

CHEN ET AL.

**Examiner**

Juan A. Torres

**Art Unit**

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Drawings***

Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:

- a) In page 9 paragraph [0033] the recitation "440" is improper; it is suggested to be changed to "410".
- b) In page 9 paragraph [0034] the recitation "The can then be filtered" is improper.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-30 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishio (US 4039961). A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). ). Ishio discloses the concept of a layered signal as indicated in the disclosure (page 2 paragraph [0009]) and this limitation had been taken into account in the present Office Action.

As per claims 1 and 19 Ishio discloses a tuner for receiving a layered signal and producing a layered in-phase signal and a layered quadrature signal (figure 5 block 17 column 4 line 11); an analog-to-digital converter for digitizing the layered in-phase signal and the layered quadrature signal (figure 5 block 16 column 4 line 7); a processor for decoding the layered in-phase signal and the layered quadrature signal to produce a signal layer in-phase signal and a single layer quadrature signal (figure 5 block 16 column 4 line 7); a digital-to-analog encoder for converting the single layer in-phase signal and the single layer quadrature signal to a single layer in-phase analog signal and a single layer quadrature analog signal (figure 5 block 18 column 4 line 12); and a modulator for modulating the single layer in-phase analog signal and the single layer quadrature analog signal to produce a single layer signal (figure 5 block 21 column 4 line 18).

As per claims 2 and 20 Ishio discloses that the layered signal is compatible with a legacy receiver such that at least one signal layer is decodeable directly from the layered signal with the legacy receiver (figure 5 block 19 and 20 column 4 lines 14-15).

As per claims 3 and 21 Ishio discloses that the single layer signal from the modulator is decodeable with a legacy receiver (figure 5 block 27 and 28 column 4 line 52).

As per claims 4 and 22 Ishio discloses that the processor comprises a logic circuit (figure 5 blocks 16 column 4 line 7).

As per claims 5 and 23 Ishio discloses inherently that the processor comprises match filtering the layered in-phase signal and the layered quadrature signal (figure 5 blocks 16 column 4 line 7).

As per claims 6 and 24 Ishio discloses that the processor demodulates and decodes an upper layer signal from the layered in-phase signal and the layered quadrature signal (figure 5 block 27 and 28 column 4 line 52).

As per claims 7 and 25 Ishio discloses that the processor produces an ideal upper layer signal including an ideal in-phase upper layer signal and an ideal quadrature upper layer signal from the decoded upper layer signal and subtracts the ideal in-phase upper layer signal and the ideal quadrature upper layer signal from the layered in-phase signal and the layered quadrature signal, respectively, to produce the single layer in-phase signal and the single layer quadrature signal (figure 5 block 25 column 10 lines 42-52).

As per claims 8 and 26 Ishio discloses that layered in-phase signal and the layered quadrature signal are delayed to synchronize the subtraction (figure 5 delay line 23 column 4 line 25).

As per claims 9 and 27 Ishio discloses producing the ideal upper layer signal comprises signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal (figure 5 block 21 column 4 line 18).

As per claims 10 and 28 Ishio inherently discloses processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises finite impulse response matched filtering the ideal in-phase upper layer signal and the ideal quadrature upper layer signal (figure 5 blocks 16 column 4 line 7).

As per claims 11 and 29 Ishio discloses signal processing the ideal in-phase upper layer signal and the ideal quadrature upper layer signal comprises applying a signal map to the ideal in-phase upper layer signal and the ideal quadrature upper layer signal, the signal map accounting for transmission distortions of the layered signal. (figure 5 block 21 column 4 line 18).

As per claims 12 and 30 Ishio discloses inherently that the processor comprises match filtering the layered in-phase signal and the layered quadrature signal (figure 5 blocks 16 column 4 line 7).

As per claim 13 Ishio discloses a digital processor for decoding a layered signal to produce a single layer signal, comprising: a demodulator and decoder for decoding an upper layer signal from the layered signal (figure 5 block 16 column 4 line 7); an encoder for generating an ideal upper layer signal from the decoded upper layer signal

(figure 5 block 18 column 4 line 12); a signal processor for modifying the ideal upper layer signal to characterize transmission and processing effects (figure 5 block 21 column 4 line 18); and a subtractor for subtracting the modified ideal upper layer signal from the layered signal to produce the single layer signal (figure 5 block 25 column 10 lines 42-52).

As per claim 14 Ishio discloses a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize amplitude and phase matching of the modified ideal upper layer signal and the layered signal (figure 5 delay line 23 column 4 line 25).

As per claim 15 Ishio discloses a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize subtraction of the modified ideal upper layer signal and the layered signal (figure 5 delay line 23 column 4 line 25).

As per claim 16 Ishio discloses inherently that the signal processor performs finite impulse response matched filtering on the ideal upper layer signal (figure 5 blocks 16 column 4 line 7).

As per claim 17 Ishio discloses that the signal processor applies a signal map to the ideal upper layer signal (figure 5 block 21 column 4 line 18).

As per claim 18 Ishio discloses inherently that the signal processor amplitude and phase matches the ideal upper layer signal with the layered signal (figure 5 blocks 16 column 4 line 7).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arslan (US6574235) and further in view of Ishio (US 4039961). Arslan recites all the limitations of claims 1-30. Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 1-30.

As per claims 1 and 19 Arslan discloses an apparatus for receiving a non-coherent modulation signal, comprising a tuner for receiving a signal and producing an in-phase signal and a quadrature signal therefrom (figure 1 block 19 column 6 lines 29-31); an analog-to-digital converter for digitizing the in-phase signal and the quadrature signal (figure 1 block 19 column 6 lines 29-31); a processor for decoding the in-phase signal and the quadrature signal to produce a signal layer in-phase signal and a single



layer quadrature signal (figure 4B block 102B column 6 lines 29-31); a digital-to-analog encoder for converting the single layer in-phase signal and the single layer quadrature signal to a single layer in-phase analog signal and a single layer quadrature analog signal (figure 4B block 104B column 10 line 64); and a modulator for modulating the single layer in-phase analog signal and the single layer quadrature analog signal to produce a single layer signal (figure 4B block 103B column 10 line 60). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 1 and 19.

As per claims 2 and 20 Arslan discloses that the signal is compatible with a legacy receiver such that at least one signal layer is decodeable directly from the signal with the legacy receiver (figure 4B block 102B column 10 line 67). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation

for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 2 and 20.

As per claims 3 and 21 Arslan discloses that the single layer signal from the modulator is decodeable with a legacy receiver (figure 4B block 110B column 11 lines 6-10). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 3 and 21.

As per claims 4 and 22 Arslan discloses that the processor comprises a logic circuit (figure 4B block 101B column 10 line 60). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1

lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 4 and 22.

As per claims 5 and 23 Arslan discloses inherently that the processor comprises match filtering the in-phase signal and the quadrature signal (figure 1 block 19 column 6 lines 29-31). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 5 and 23.

As per claims 6 and 24 Arslan discloses that the processor demodulates and decodes a signal from another in-phase signal and the quadrature signal (figure 4B block SEQ2B column 10 lines 49-52). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1

Art Unit: 2631

lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 6 and 24.

As per claims 7 and 25 Arslan discloses that the processor produces an ideal signal including an ideal in-phase signal and an ideal quadrature signal from the decoded signal and subtracts the ideal in-phase signal and the ideal quadrature signal from the other in-phase signal and the other quadrature signal, respectively, to produce the single layer in-phase signal and the single layer quadrature signal (figure 4B block 107B column 10 lines 59-62). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 7 and 25.

As per claims 8 and 26 Arslan inherently discloses that in-phase signal and the quadrature signal are delayed to synchronize the subtraction (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art

Art Unit: 2631

to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 8 and 26.

As per claims 9 and 27 Arslan discloses producing the ideal signal comprises signal processing the ideal in-phase signal and the ideal quadrature signal (figure 4D blocks 103D and 109D column 10 lines 43-45). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 9 and 27.

As per claims 10 and 28 Arslan inherently discloses processing the ideal in-phase signal and the ideal quadrature signal comprises finite impulse response matched filtering the ideal in-phase signal and the ideal quadrature signal (figure 1 block 19 column 6 lines 29-31). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the

Art Unit: 2631

time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 10 and 28.

As per claims 11 and 29 Arslan discloses signal processing the ideal in-phase signal and the ideal quadrature signal comprises applying a signal map to the ideal in-phase signal and the ideal quadrature signal, the signal map accounting for transmission distortions of the other signal (figure 4D blocks 104D and 112D column 11 lines 39-41). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 11 and 29.

As per claims 12 and 30 Arslan discloses inherently that the processor comprises match filtering the in-phase signal and the quadrature signal. Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de

Art Unit: 2631

demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claims 12 and 30.

As per claim 13 Arslan discloses a digital processor for decoding a signal to produce a single layer signal, comprising: a demodulator and decoder for decoding a signal from another signal (figure 4B block 101B column 10 line 60); an encoder for generating an ideal signal from the decoded signal (figure 4B block 104B column 10 line 67); a signal processor for modifying the ideal signal to characterize transmission and processing effects (figure 4B block 105B column 10 line 61); and a subtractor for subtracting the modified layer signal from the another signal to produce the single layer signal (figure 4B block 107B column 10 line 61). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1

Art Unit: 2631

lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 13.

As per claim 14 Arslan inherently discloses a delay function correlated to an output of the signal processor to appropriately delay the other signal to synchronize amplitude and phase matching of the modified ideal signal and the other signal (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 14.

As per claim 15 Arslan inherently discloses a delay function correlated to an output of the signal processor to appropriately delay the layered signal to synchronize subtraction of the modified ideal upper layer signal and the layered signal (figure 4B block 105B column 10 lines 45-48). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals



Art Unit: 2631

as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 15.

As per claim 16 Ishio discloses inherently that the signal processor performs finite impulse response matched filtering on the ideal signal (figure 1 block 19 column 6 lines 29-31). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 16.

As per claim 17 Arslan discloses that the signal processor applies a signal map to the ideal signal (figure 4B block 104B column 10 line 67). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation

Art Unit: 2631

for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 17.

As per claim 18 Ishio discloses inherently that the signal processor amplitude and phase matches the ideal signal with the other signal (figure 1 block 19 column 6 lines 29-31). Arslan doesn't specifically apply his teaching to the case of layered signals. Ishio specifically discloses de demodulation of layered signals. Arslan and Ishio are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the reception of layered signals as disclosed by Ishio. The suggestion/motivation for doing so would have been to increase the information transmission rate of the system (Ishio column 1 lines 65-68). Therefore, it would have been obvious to combine Arslan with Ishio to obtain the invention as specified in claim 18.

Caims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishio (US 4039961) and further in view of Anderson (US 6297691). Ishio recites all the limitations of claims 1-30 (see above). Ishio doesn't specifically apply his teaching to the case of non-coherence signal. Anderson specifically discloses de demodulation of coherence and non-coherent in-phase and quadrature signals modulated signals. Ishio and Anderson are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the

art to incorporate in the receiver disclosed by Ishio the reception of non-coherence signals as disclosed by Anderson. The suggestion/motivation for doing so would have been to demodulate coherence and non-coherence signals reducing the cost of the decoder and to have compatibility with other systems (Anderson column 2 lines 46-61). Therefore, it would have been obvious to combine Ishio with Anderson to obtain the invention as specified in claims 1-30.

Claims 5, 10, 12, 16, 18, 23, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishio (US 4039961) as applied to claims 1, 9, 13, 19 and 27, and further in view of Ben-Efraim (US 5999793).

As per claims 5 and 23 Ishio teaches claims 1 and 19. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 5 and 23.

As per claims 10 and 28 Ishio teaches claims 9 and 27. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3

Art Unit: 2631

line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 10 and 28.

As per claims 12 and 30 Ishio teaches claims 9 and 27. Ishio doesn't specifically teach that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claims 12 and 30.

As per claim 16 Ishio teaches claim 13. Ishio doesn't specifically teach that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art

to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claim 16.

As per claim 18 Ishio teaches claim 13. Ishio doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Ishio and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Ishio the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Ishio with Ben-Efraim to obtain the invention as specified in claim 18.

Claims 5, 10, 12, 16, 18, 23, 28 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arslan (US6574235) as applied to claims 1, 9, 13, 19 and 27, and further in view of Ben-Efraim (US 5999793).

As per claims 5 and 23 Arslan teaches claims 1 and 19. Arslan doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the

same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 5 and 23.

As per claims 10 and 28 Arslan teaches claims 9 and 27. Arslan doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 10 and 28.

As per claims 12 and 30 Arslan teaches claims 9 and 27. Arslan doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the

Art Unit: 2631

matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claims 12 and 30.

As per claim 16 Arslan teaches claim 13. Arslan doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column 3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claim 16.

As per claim 18 Arslan teaches claim 13. Arslan doesn't specifically teach that that the processor comprises match filtering. It is very well known and Ben-Efraim teaches that the processor comprises match filtering (figure 2 prior art column 3 line 6). Arslan and Ben-Efraim are analogous art because they are from the same field of endeavor. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate in the receiver disclosed by Arslan the matched filter disclosed by Ben-Efraim. The suggestion/motivation for doing so would have been to maximize the signal-to-noise ratio of the digital baseband signals (Ben-Efraim column

Art Unit: 2631

3 lines 28-31). Therefore, it would have been obvious to combine Arslan with Ben-Efraim to obtain the invention as specified in claim 18.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juan A. Torres whose telephone number is (571) 272-3119. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad H. Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

03-30-2005  
Juan Alberto Torres

  
MOHAMMED GHAYOUR  
SUPERVISORY PATENT EXAMINER